Claims:

1. (Cancelled)

2. (Cancelled)

3. (Currently Amended) Apparatus according to Claim [[2]]89, characterized by a position indicator (48-52) for the axial position of the probe section (42) in relation to a contour surface of the tissue.

4. (Previously Presented) Apparatus according to Claim 3, characterized in that the probe position indicator (48-52) has an input part (48) which cooperates with the tissue surface and which is arranged axially displaceably on the probe section (42) and is supported by a spring (50) on a stationary apparatus section, which spring (50) acts on a force sensor or deformation sensor (52;1).

5. (Previously Presented) Apparatus according to Claim 4, characterized by an evaluation unit (88) which receives the output signals of the probe position indicator (48-52) and the output signals of the measuring element, and compares the output signals from the latter, which are obtained when the positions of the probe section (42) differs with one another, for which purpose the signals obtained for each of the different probe positions are stored as a function of the output signals from the probe position indicator (48-52).

6. (Previously presented) Apparatus according to Claim 89, where the measuring element has a radial measuring axis, relative to the axis of the probe section (42), characterized in that the probe section (42), is arranged rotatably (118-122) on the measuring head (40).

7. (Previously Presented) Apparatus according to Claim 89, characterized in that the measuring head (40) is attached to a grip part (36) having a long axis.

8. (Previously Presented) Apparatus according to Claim 7, characterized in that the long axis of the grip part (36) and the axis of the measuring head (40) are inclined with respect to one another.

9. (Previously presented) Apparatus according to Claim 7, characterized in that the grip part (36) is connected via a rotating joint (99) to a supply cable (101).

10. (Previously Presented) Apparatus according to Claim 89, characterized in that the measuring device has a first sensor part (104; 130, 138; 144; 150-54; 158, 160) acting on the tissue to produce a stimulus and a second sensor part (116; 130, 134; 148; 150-154; 164-170) measuring the response of the tissue to the stimulus, and in that means for adjusting the strength of the action produced by the first sensor part are provided.

11. (Original) Apparatus according to Claim 10, characterized in that the adjusting means comprise an input device (94) carried by the grip part (36).

12. (Previously Presented) Apparatus according to Claim 10, characterized in that the adjusting means comprise a program control (88).

13. (Previously Presented) Apparatus according to Claim 12, characterized in that the program control operates so that the first sensor part (104; 130, 138; 144; 150-54; 158, 160) is stimulated so that a preset output signal is obtained at the second sensor part (116; 130, 134; 148; 150-154; 164-170).

14. (Cancelled)

15. (Currently Amended) Apparatus according to Claim [[2]] 89, characterized in that the fluid is a gas and in that the measuring head (40) is connected via an on-off valve (62) which has a closed position to a fluid source (76; 80), and a pressure gauge (60) is connected to the measuring chamber which is limited by the measuring head (40) and the pressure gauge is adapted to be limited by the tissue.

16. (Original) Apparatus according to Claim 15, characterized in that the measuring head (40) has a pressure reservoir (58) connected to the measuring chamber.

17. (Currently Amended) Apparatus according to Claim [[14]] 89, characterized in that the diagnostic fluid is a liquid and in that a flow meter (66) is arranged in the supply line leading from the fluid source (76) to the measuring head (40).

18. (Original) Apparatus according to Claim 17, characterized in that the flow meter (66) has a capillary tube and means for feeding gas bubbles into the downstream end of the capillary tube.

19. (Previously Presented) Apparatus according to Claim 89, characterized in that the sealing element (54) is carried by a free front surface of the input part (48) of a probe position indicator (48-52).

20. (Previously Presented) Apparatus according to Claim 89, characterized in that the probe section (42) is a cylindrical pipe which is closed at an end (44) and which has at least one fluid emergence orifice in its peripheral wall.

21. (Currently Amended) Apparatus according to Claim 20, characterized in that the probe section (42) has at its end next to ~~the~~ a grip part (36) a shoulder (274) which expands in the radial direction, and in that a sealing tube (276) is arranged on the outside of the probe section (42) and is widened when pushed with its end which is next to the grip part (36) of the probe section (42) onto the sealing shoulder (274).

22. (Previously Presented) Apparatus according to Claim 89, characterized in that the measuring head (40) can be connected by a reversing valve (72) alternately to a positive pressure fluid source (76) and a negative pressure fluid source (80).

23. (Previously Presented) Apparatus according to Claim 22, characterized by means (102) for collecting the liquid volume aspirated from the measuring head (40).

24. (Previously presented) Apparatus according to Claim 89, characterized in that the measuring head (40) has a measuring point (104) which can be extended.

25. (Previously Presented) Apparatus according to Claim 24, characterized in that the measuring point (104) is carried by a lever (108) which can be pivoted by an actuating rod (112) running in the lengthwise direction of the probe section (42) so that the measuring point (104) is moved with a radial movement component through a window (106) of the probe section (42).

26. (Previously Presented) Apparatus according to Claim 24, characterized in that the measuring point is carried by a flexible transmission element (124) which is guided in a guide (126) in the probe housing (128) so that the transmission element (124) emerges with a radial direction component from the probe housing (128).

27. (Previously Presented) Apparatus according to Claim 25, characterized in that the actuating rod (112) is moved by a motor operator (114) whose driving force is adjustable (74).

28. (Previously Presented) Apparatus according to Claim 89, characterized in that the measuring head (40) comprises a light source (138), an optical system (130, 132) and an image converter (134).

29. (Previously Presented) Apparatus according to Claim 89, characterized in that the measuring head (40) comprises a measuring light source (160), and at least one color filter (168) and a light detector (170).

30. (Previously presented) Apparatus according Claim 89, characterized in that the measuring device has a vibrator (144), a generator (146) operating on the vibrator, and means (148) for measuring the damping of the vibrator.

31. (Previously presented) Apparatus according to Claim 89, characterized in that the measuring device has a vibrator (144), an intermittently operating generator (146) operating on

the vibrator (144) and a receiver (144) for vibrations reflected from the tissue, and means (88) for evaluating the intensity of the reflected vibrations.

32. (Previously presented) Apparatus according to Claim 89, characterized in that the measuring device has spaced electrodes (150, 152) which are connected to a resistance or impedance measuring unit (154) or represent part of a vibration circuit which is connected to a frequency measuring unit.

33. (Previously presented) Apparatus according to Claim 89, characterized in that the measuring device has a micro-porous test tube (156) or a hollow drill whose interior can be connected to a negative pressure source (80).

34. (Withdrawn)

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89. (Previously Presented) Apparatus for determining the remineralization ability of a hard tissue with a measuring device (46, 60, 86, 88; 104, 114, 116, 86, 88; 130-140, 88; 144-148, 88; 150-154, 88; 156, 86, 88; 158-174) for local measurement of a physical property of the hard tissue,

wherein

the measuring device has a measuring head (40) with a rod-like probe section (42), which probe section (42) is introducible into a working channel (32) of the hard tissue and comprises a measuring element (46, 60; 104, 116; 130, 134, 138; 144, 148; 150-154) being connected to the

probe section (42) and responding to the physical property of porosity of the hard tissue, the measuring head (40) has a sealing element (54) which cooperates with a section of the tissue surface, and the measuring head (40) is connected to a fluid source (76; 80) which is under a pressure different from normal pressure, and the measuring device measures the fluid leakage through the tissue to be investigated.

90. (Cancelled).

91. (Previously Presented) Apparatus according to Claim 2, characterized in that the probe section (42) is cylindrical.

92. (Previously Presented) Apparatus according to Claim 7, characterized in that the grip part (36) having a long axis is rotatable about said long axis.

93. (Previously Presented) Apparatus according to Claim 8, characterized in that the long axis of the grip part (36) and axis of the measuring head (40) are inclined at an angle between about 30° and about 90°.

94. (Previously Presented) Apparatus according to claim 8, characterized in that the long axis of the grip part (36) and the axis of the measuring head (40) are inclined at an angle of about 60°.

95. (Currently Amended) Apparatus according to claim [[2]] 1, characterized in that the shoulder (274) is conical.